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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,298	12/21/2001	Peter J. Hanselmann	CISCP273	7980
22434	7590	09/02/2005	EXAMINER	
BEYER WEAVER & THOMAS LLP			DYKE, KERRI M	
P.O. BOX 70250			ART UNIT	
OAKLAND, CA 94612-0250			PAPER NUMBER	
			2667	

DATE MAILED: 09/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/026,298	HANSELMANN, PETER J.	
	Examiner	Art Unit	
	Kerri M. Dyke	2667	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-16 and 18-34 is/are rejected.
- 7) ☒ Claim(s) 4 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/25/2002</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Figure 1B, elements 124 and 150. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: On page 19 the CPU in figure 4 is referred to as element 62 instead of 462. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are

not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1-3, 5-16, and 18-34 are rejected under 35 U.S.C. 102(a) as being anticipated by Watson et al. (US 6,853,617).

In regards to claim 1, Watson et al. discloses a method for forwarding data within a redundant system having an active router and a standby router, the method comprising: sending a first packet that forms part of a data connection, the first packet having a first send sequence number and the first packet being sent from the active router to a receiver, wherein the data connection is a type of connection that tracks the sequence of data sent between the active router and the receiver; receiving a second packet having an associated first receive sequence number, and the second packet being received into the active router from the receiver; and communicating the first send sequence number and the first receive sequence number to the standby router.

In column 2 line 32 it is disclosed that Watson et al. are dealing with a TCP connection. TCP is inherently a type of data connection that tracks the sequence of data. It is also well known that TCP packets inherently contain a send sequence number and a receive sequence

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number. In column 2 lines 35-47 and figure 1 it is disclosed that the router and standby router are connected in such a way so that the standby router has a backup copy of all the input and output streams. This means that the first send and receive sequence numbers are communicated to the standby router. In Watson et al.'s embodiment the router and standby router are logical as opposed to physical distinctions, but the configuration still produces a redundant system with an active and standby router.

In regards to claim 2, Watson et al. discloses a method as recited in claim 1, further comprising: when the standby router replaces the first active router as a second active router, sending a sequence number recovery packet from the second active router to the receiver, the sequence number recovery packet having an associated sequence number and an associated acknowledgement number, wherein the first send sequence number is used as the sequence number associated with the sequence number recovery packet and the first receive sequence number is used as the acknowledgement number associated with the sequence number recovery packet; in response to the sequence number recovery packet, receiving a sequence recovery information packet from the receiver into the second active router, the sequence recovery information packet having an associated sequence number and an associated acknowledgement number; and sending a data packet from the second active router to the receiver, the data packet including the sequence number and the acknowledgement number that are associated with the sequence recovery information packet.

Figures 2 and 3 show how data is rerouted in the event of failure in one of the two routers. The process is described in column 5 lines 54-67 and column 6 lines 1-17. The backup router sends a packet with the first send and receive sequence numbers to the receiver. (These

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numbers may have been updated periodically since the connection was established.) The receiver will reply with the next expected send and receive numbers, as it would do in any other situation. In response to this packet the second active router will begin to send data packets with the appropriate send/receive sequences. The special names given to these packets by the applicant, sequence number recovery and sequence recovery information, does not change the content of the packets. The packets sent and received in the invention of Watson et al. meet all the content requirements of claim 2.

In regards to claim 3, Watson et al. discloses a method as recited in claim 2, wherein the data connection is a Transmission Control Protocol (TCP) connection in column 2 line 32.

In regards to claim 5, Watson et al. discloses a method as recited in claim 3, wherein the first packet establishes a start of the TCP connection. It is inherent that a packet must be sent to establish the data connection.

In regards to claim 6, Watson et al. discloses a method as recited in claim 5, wherein the first packet is a SYN packet. A TCP connection is inherently started with a SYN packet.

In regards to claim 7, Watson et al. discloses a method as recited in claim 2, wherein the second packet is in response to the first packet. TCP uses a three-way acknowledgement, so if the first packet began the sequence, which would be the case for connection establishment, the second packet would inherently be the acknowledgement packet in response to the first packet.

In regards to claim 8, Watson et al. discloses a method as recited in claim 2, wherein the first packet is an acknowledgement packet for the second packet, the second packet being sent prior to the first packet. It is well known that a TCP connection is initiated with a SYN packet originating from the receiver, which would be referred to as the second packet following the

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conventions of claim 2. A packet from the router, which would be called the first packet, acknowledges the SYN packet. It is inherent that a TCP session would have to be established and the establishment would follow the three-way handshake mandated by the TCP protocol.

In regards to claim 9, Watson et al. discloses a method as recited in claim 2, wherein the connection is a TCP connection, the first packet is a SYN packet, and the second packet is a data packet. . It is well known that a TCP connection is initiated with a SYN packet originating from the receiver, which would be referred to as the second packet following the conventions of claim 2. A packet from the router, which would be called the first packet, acknowledges the SYN packet. It is inherent that a TCP session would have to be established and the establishment would follow the three-way handshake mandated by the TCP protocol.

In regards to claim 10, Watson et al. discloses a method as recited in claim 2, wherein the connection is a TCP connection, and wherein both the first and second packets are data packets and not SYN or acknowledgement packets. As long as the TCP session is not being established or disestablished, there is no need to send SYN or separate acknowledgement packets. In every other phase of TCP transfer the first and second packets will inherently be data packets, not SYN or acknowledgement packets.

In regards to claim 11, Watson et al. discloses a method as recited in claim 2, wherein the redundant system is a checkpointed non-stop forwarding system. A non-stop forwarding system is configured in such a way that there is no downtime during the router switchover. In column 8 lines 3-8 it is disclosed that a seamless handoff is completed as long as the TCP connection has completed the three-way setup. A seamless handoff indicates that no packets are lost, or in other words, all the packets are forwarded through the new active router.

In regards to claim 12, Watson et al. discloses a method as recited in claim 1, further comprising: continuing to send a plurality of subsequent send packets that forms part of the data connection, each of the packets each having an associated send sequence number and the plurality of subsequent send packets being sent between the active router to the receiver; continuing to receive a plurality of subsequent receive packets that each have an associated receive sequence number, and the subsequent receive packets being received into the active router from the receiver in response to the subsequent send packets', and periodically communicating the send sequence numbers and the receive sequence numbers associated with the subsequent receive and send packets, respectively, to the standby router as replacements for the first receive and send sequence numbers, respectively. It is inherent that once a TCP connection is established subsequent data packets will be sent between the router and the receiver and that these packets will contain sequence numbers. It is disclosed in column 5 lines 1-9 that the standby router will receive updated sequence numbers either as a result of explicit messages sent to the backup by the active router, or by logs maintained by the backup router.

Claims 13 and 15-25 are for a network system configured to perform the method presented in claims 1-12. Claims 13, 15-16, and 18-25 are rejected because Watson et al. discloses in column 2 line 1 that their invention is for both a method and a system.

Claims 26-32 are for software, on computer readable medium, which executes the method of claims 1-3, 5-7, and 12. In column 2 lines 23-28, Watson et al. discloses the use of DRP software for the execution of the method. It is inherent that the software must be on computer readable medium; otherwise the program would be unusable.

Claims 33 and 34 are for an apparatus containing means for accomplishing the method of claims 1 and 2. Watson et al. disclose means for performing the method of claims 1 and 2 as Master Control Processor (MCP) units. The MCPs are enclosed within a router apparatus (column 2 lines 4-5).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watson et al. (US 6,853,617) in view of Kleine-Altekamp et al. (US 6,914,879).

In regards to claim 14, Watson et al. discloses a network system as recited in claim 13. It is not disclosed wherein the active router is a separate device from the standby router.

Kleine-Altekamp et al. discloses dividing backup equipment into at least two separate devices and placing those devices into separate rooms (column 2 lines 26-27).

It would have been obvious to one of ordinary skill in the art to modify the redundant router system as taught by Watson et al. to include at least two separate devices in two locations as taught by Kleine-Altekamp.

The motivation for doing so is to protect against catastrophe such as fire or explosion as described in figures 3-5. Even though one of the network elements is completely destroyed, the other can continue to function.

Allowable Subject Matter

7. Claims 4 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kerri M. Dyke whose telephone number is (571) 272-0542. The examiner can normally be reached on Monday through Friday, 8:10 am - 4:15 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (571) 272-3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kmd

KWANG BIN YAO
PRIMARY EXAMINER

